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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,453	12/14/2005	Michael Cornelis Van Beek	PHNL030694US	3081

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EXAMINER
FERNANDEZ, KATHERINE L

ART UNIT	PAPER NUMBER
3768	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/560,453	VAN BEEK, MICHAEL CORNELIS	
	Examiner	Art Unit	
	KATHERINE L. FERNANDEZ	3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12/14/05* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term “in particular" in line 3 of the claim is a relative term which renders the claim indefinite. The term “in particular” in not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 1, 4-16,18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lucassen et al. (WO 02/057759) as cited by applicant in view of Wataru (JP 2003029138). Note Examiner references the English translation of Wataru as provided by IPDL.

Lucassen et al. disclose a spectroscopic analysis apparatus and method, for analyzing an object comprising: an excitation system (i.e. target system) for emitting an excitation beam (i.e. light beam) to excite a target region (pg. 10, lines 25-28; pg. 1,

lines 8-13; pg. 5, lines 13-18); a monitoring system (i.e. Raman spectroscopy device) comprising a monitoring beam source for emitting a monitoring beam and an imaging system to image the target region (pg. 9, lines 27-34; pg. 1, lines 8-13; pg. 5, lines 19-27; pg. 3, lines 20-33;); a detection system (i.e. of the Raman spectroscopy device) for detecting scattered radiation from the target region generated by the excitation beam (pg. 9, lines 27-34; pg. 5, lines 27-33pg. 3, lines 20-33); focusing means for focusing the excitation system, the monitoring system and the detection system on a detection plane in the target region (pg. 5, line 19-pg. 6, line 13; pg. 10, line 4-pg. 11, line 15; pg. 13, lines 26-31) and wherein said analysis apparatus is adapted for in vivo analysis of blood (pg. 2, lines 20-29). See Figure 1. They further disclose that the monitoring system is adapted for orthogonal polarized spectral imaging (pg. 6, lines 14-27). They further disclose that their apparatus can be used to investigate the composition of an object to be examined, and therefore their system is capable of being adapted for use in the field of laser surgery, laser cutting, photodynamic therapy, etc. (pg. 1, lines 1-5). As can be seen in Figure 1, the excitation system (exs) comprises a first light source and monitoring beam source for emitting a monitoring beam of the monitoring system comprises a second light source (ls) different from the first light source (see Figure 1).

However, although they do disclose that an image of the detection plane is acquired by the monitoring system and is used to direct the excitation beam exactly on the target (column 3, lines 8-19), they do not specifically disclose that their apparatus further comprises an image processing means for processing the image to determine image characteristics of the image of the detection plane including at least one of a

spatial dimension characteristic, a spatial frequency characteristic, and an image contrast characteristic (such as maximal contrast (i.e. intensity of one or more pixels in image show an extremum or spread of intensity of pixels is maximal or until the average/absolute intensity difference between pixels is maximal)), which indicate if the imaging system is focused on the object to be analyzed and an auto-focusing means for controlling the focusing means to change the focusing of the monitoring system, the excitation system and the detection system based on the determined image characteristics, for controlling the monitoring system to image the target region and for controlling the image processing means to determine the image characteristics until the object substantially lies in the detection plane.

Wataru discloses an automatic focus method of a microscope (pg. 1, paragraph [0001]). They disclose that their invention uses data which is provided with an imaging means, wherein a contrast value is calculated (i.e. via CPU183) and the position from which the contrast value serves as the maximum is determined as the focusing position (pg. 2, paragraph [0011]; pg. 4-5, paragraphs [0023]-[0030]). The sample is laid on a moveable stage, and an image is taken repeatedly at different stage positions and a contrast index is taken at each stage position (pg. 4, paragraph [0022]-[0030]). The relative distance of said sample and said objective optical system is adjusted to a range from which a video signal is obtained and a focusing position is detected combining the increase and decrease of a judgment of a contrast value calculated from the video signal (pg. 3, paragraph [0012]). At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the invention of Lucassen et al. to

include an image processing means for processing the image to determine image characteristics of the image of the detection plane including an image contrast characteristic (i.e. intensity of one or more pixels in image show an extremum or spread of intensity of pixels is maximal or until the average/absolute intensity difference between pixels is maximal) , which indicate if the imaging system is focused on the object to be analyzed and an auto-focusing means for controlling the focusing means to change the focusing of the monitoring system, the excitation system and the detection system based on the determined image characteristics, for controlling the monitoring system to image the target region and for controlling the image processing means to determine the image characteristics until the object substantially lies in the detection plane, as taught by Wataru, as automatization of focusing, based on image characteristics such as image contrast, allows for stable and efficient focusing and reduces the effort of the observer in continuous focusing, thus increasing the ease of use of the instrument.

5. Claims 2-3,17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lucassen et al. in view of Wataru as applied to claims 1,11 and 12 above, and further in view of Olszak (US Pub No. 2004/0223632).

As discussed above, the above combined references meet the limitations of claims 1 and 11-12. However, they do not specifically disclose that the image processing means are adapted for determining the amplitudes of spatial frequencies corresponding to typical characteristics of the object from a detected image and wherein said auto-focusing means are adapted for controlling the focusing means to change the

focusing of the monitoring system, the excitation system and the detection system based on the determined image characteristic, for controlling the monitoring the monitoring system to repeatedly image the target region and for controlling the image processing means to determine the image characteristics from a detected image until the determined amplitudes of spatial frequencies are maximally, wherein the spatial frequencies correspond to typical diameters of blood vessels from a detected image. Olszak discloses a method and apparatus for finding the best-focus position of a scanning array microscope that includes a plurality of optical imaging elements with respective optical axes (pg. 1, paragraph [0002]). They disclose that the best focus may be detected by measuring spatial frequency content and recording the scan position corresponding to maximum frequency content (see Abstract; pg. 6, paragraphs [0045]-[0047]). As can be seen in Figure 8, the in-focus position occurs when the amplitudes of the spatial frequencies are maximal. They disclose that finding the in-focus position can also be found using the contrast parameters of an image, but it is not as discriminating as using the spatial frequency parameters of an image (pg. 6, paragraph [0045]-[0047]. Although they do not specifically disclose that the amplitudes of spatial frequencies correspond to typical diameters of blood vessels, it would have been obvious to one of ordinary skill in the art that if the image comprised of a blood vessel, the amplitudes of spatial frequencies would correspond to diameters of blood vessels as it is well known in the art that spatial frequencies provide information about edge features in an image and thus, in an image of a blood vessel, spatial frequencies would correspond to typical diameters of blood vessels, as the diameters of blood

vessels are associated with edges in an image of a blood vessel. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the invention of the above combined references to have the image processing means be adapted to determine the amplitudes of spatial frequencies (which correspond to typical diameters of blood vessels from a detected image) and to have the auto-focusing means adapted for controlling the focusing means, the excitation system, the detection system, the monitoring system and the image processing means to determine the image characteristics from a detected image until the determined amplitudes of spatial frequencies are maximally, as the above combined references disclose that auto-focusing is performed by acquiring an image of the best focus and Olszak teaches that an image of the best focus can be determined by measuring the spatial frequency content and determining where the maximum frequency content occurs (pg. 6, paragraphs [0045]-[0047]; see Abstract).

Response to Arguments

6. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection. The indicated allowability of claims 3,5, 10 and 15 as indicated in the previous Office Action is withdrawn in view of the newly discovered reference(s) to Lucassen et al. (WO 02/057759) and Wataru (JP 2003029138). Rejections based on the newly cited reference(s) are discussed above.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KATHERINE L. FERNANDEZ whose telephone number is (571)272-1957. The examiner can normally be reached on 8:30-5, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571)272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eric F Winakur/
Primary Examiner, Art Unit 3768